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A REVISION OF *TROMOTRICHE* HAW. (ASCLEPIADACEAE)

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Abstract

The recently resurrected small genus *Tromotriche* Haw. is revised. The three species are discussed and described in detail; an artificial key to the species is provided as well as a map showing their distribution.

Uittreksel

'N HERSIENING VAN *TROMOTRICHE* HAW. (ASCLEPIADECEAE)

Die onlangs-herstelde klein genus *Tromotriche* Haw. word hersien. Die drie species word in detail bespreek en beskryf; 'n kunsmatige sleutel tot dié species word voorsien asook 'n kaart om die verspreiding te toon.

Key words: *Tromotriche, Stapelieae*, Asclepiadaceae.

Tromotriche Haw., Syn. Pl. Succ.: **36** (1812), p.p. excl. *T. pruinosa*; Suppl. Pl. Succ.: 10 (1819).—Sweet, Hort. Brit. ed. 2: 358 (1830), p.p. excl. *T. ciliata, T. mutabilis, T. obliqua,* et *T. pruinosa.*—G. Don, Gen. Syst. **4**: 119 (1838), p.p. excl. *T. obliqua* et *T. pruinosa.*—Leach in Jl S. Afr. Bot. **48**(3): 425 (1982). Lectotype species: *Tromotriche revoluta* (Masson) Haw.

Stapelia auct. pl., p.p. min. et ut in sectio *Tromotriche* vel illi comparandae, Schultes in Roem. & Schult., Syst. Veg. **6**: 34 (1820), ut *Tromotrichae.*—Endlicher & Fenzl, Gen. Pl. **1**: 598 (1838), ut in sectio "e".—Decaisne in DC, Prodr. **8**: 657 (1844), ut Sect. V, p.p. excl. *Stapelia obliqua & S. pruinosa.*—Bentham & Hooker, Gen. Pl. **2**,2: 785 (1876), ut sect. IV.—Schum. in Engl. & Prantl, Nat. Pflanzenfam. **4**(2): 280 (1897), ut Sect. IV.—Post & Kuntze, Lex. Gen. Phan.: 532 (1904), ut *Tromatriche.*—Berger, Stap. u. Klein.: 181 (1910), ut *Tromatriche*, et in: 225 excl. *Stapelia bella & S. incomparabilis.*—White & Sloane, Stapelieae, ed. 2,**2**: 419 (1937), ut Sect. IX, et in: 428 (1937), excl. *S. bella, S. comparabilis & S. incomparabilis.*—Jacobsen, Lexicon Succ. Pl.: 374 (1974), ut Sect. IX, excl. *S. bella, S. comparabilis, S. incomparabilis* et *S. prognatha* ("prognantha").

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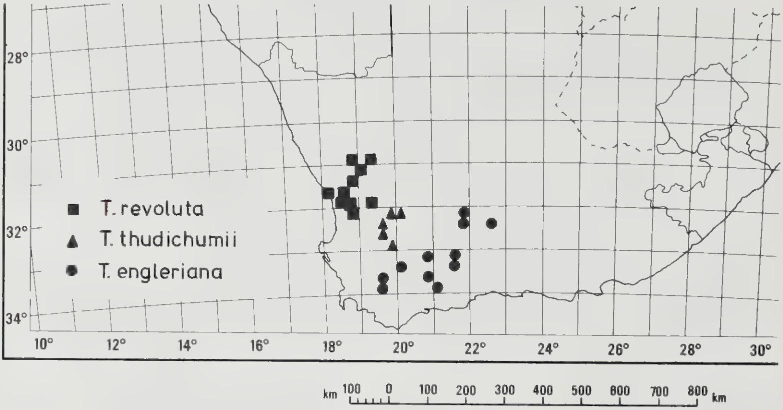

FIG. 1.
Tromotriche Haw. Map showing distribution of the species.

This small genus comprising only three species with practically contiguous, discrete distributions appears to be phyletically related to *Stapelia* L., *Tridentea* Haw. and *Orbea* Haw., as well as having strong links with *Caralluma* R.Br. (*Quaqua* N. E.Br.), being closest, as a group, probably to *Tridentea*. However, the three species appear to be more closely related to each other than to any one of the above genera; fortunately they exhibit diagnostic characters and correlations which confirm this and are adequate for recognition of the group at generic level. That it forms part of the reticulate phylogeny of these south western taxa seems obvious both morphologically and geographically; in this connection attention should perhaps be drawn to *Tridentea peculiaris* (Luckhoff) Leach, which is, to a slight extent, anomalous in that genus, has a rhizomatose habit and, like *Tromotriche thudichumii* (Pillans) Leach, a dual chromosome number.

The overall facies of the generally few-stemmed very sparingly randomly (not sympodially) branched rhizomatose plants with an inflorescence of sessile or subsessile fascicles of shortly pedicellate, strongly revolute flowers, produced randomly along the sides of the stems is quite distinctive. The stems and branches, apart from the variation in pubescence, are quite homogeneous in form, and all have a tendency to develop jointed segments. They are, in general, closer to those of *Tridentea* than of *Stapelia* except for the intermittent presence of stipular "glands" in two species, which are indicative of the stapelia connection. The flowers are also somewhat "Tridentea" in character but the reflexed corolla and the thickening around the mouth of the shallow tube, combine to impart the almost unique character which is most apparent in those of *T. revoluta*.

Plants few-stemmed, erect or sometimes partly trailing, to some extent rhizomatose, sometimes extensively so, especially in *T. revoluta*, stems rooting where touching the ground. *Stems* 4-angled, pubescent or glabrous, not or very sparingly and not sympodially branched, almost parallel-sided, often jointed or segmented, tubercle teeth small, horizontally spreading, often developing a hard brown callus similar to that frequently forming on the stems of *Caralluma (Quaqua)* species; leafless or virtually so. *Inflorescence* randomly disposed in small fascicles along the sides of the stems; peduncle obsolescent, cuspidate; pedicels generally short, flowers facing outwards. *Corolla* strongly revolute, often with the lobe apices reaching the pedicel below the calyx, lobed to 50–60 %; lobes broadly ovate-acuminate or deltate, inside smooth or transversely rugulose, variably micro-papillate and/or micro-asperulous, often very sparsely and patchily so; tube usually markedly pentagonal inside, in one species sometimes more or less circular at the mouth, with the corolla much thickened around the mouth and sometimes partially closing the tube, and the thickening extending into the walls of the tube. *Corona* variably sessile to stipitate; outer lobes micro-papillate; inner lobes two-horned, the outer horn linear, much compressed and flattened.

Cytologically odd with one species diploid (tetraploid), one tetraploid and the other hexaploid.

Patristic convergence is so prevalent throughout the tribe *Stapelieae* and most characters are so variable that positive key characters are almost non-existent, and one has to rely to a large extent on facies or combinations of characters for the identification of taxa, particularly at genus level.

The small genus *Tromotriche* Haw. is an example of this kind of position and the following table has been prepared to illustrate that although somewhat heterogeneous it comprises species which are more closely related to each other than any one is to its otherwise nearest relative.

The characters used in the table are those which are present in at least two of the species of *Tromotriche* and to which corresponding characters occur among the related taxa with which comparisons are made, but excluding those which are more or less universal in the related groups.

Presence 'X' or absence 'O' is not entirely positive in every instance and where there is significant variability or a decided tendency in the taxon concerned (e.g. as in *T. pedunculata* towards a monopodial habit), a combination of the two symbols has been used.

TABLE 1.
Comparison of *Tromotriche* characters with those of related taxa.

	Tridentea gemmiflora	*Tridentea pedunculata*	*Tridentea peculiaris*	*Tromotriche engleriana*	*Tromotriche revoluta*	*Tromotriche thudichumii*	*Stapelia flavopurpurea*	*Stapelia erectiflora*	*Stapelia* spp. Sect. *Stapelia*	*Orbea* spp.
Monopodial habit randomly few branched	O	⊗	O	X	X	X	⊗	O	O	O
Plants rhizomatous	O	O	X	X	X	X	⊗	O	O	⊗
Tubercle teeth spreading	X	X	X	X	X	X	O	O	O	X
Leafless or virtually so	O	X	O	X	X	X	O	O	O	X
Inflorescence random	X	X	X	X	X	X	O	O		
Corolla strongly revolute	O	O	O	X	X	X	O	X	O	O
Corolla glabrous but micro-sphaerico-papillate	O	X	X	X	X	X	O	O	O	
Tube diameter large	O	O	⊗	X	X	X	O	O	O	⊗
Tube markedly pentagonal at mouth	O	O	O	X	⊗	X	O	O	O	⊗
Peduncle obsolescent	O	⊗	O	⊗	X	X	O	⊗	O	O
Stems glabrous or virtually so	X	X	X	O	X	X	O	O	O	X
Stipules glanduliform	O	O	O	X	O	X	X	X	O	
Pedicel-calyx glabrous or virtually so	X	X	X	O	X	X	O	O	O	X
Cilia clavate vibratile	X	X	X	O	X	X	O	O	O	⊗
Pollinia large	O	O	O	X	X	O	O	O	X	⊗
	Tridentea			*Tromotriche*			*Stapelia*			*Orbea*
O	10	6	7	3	1	1	11	11	13	7
⊗	—	2	1	1	1	—	2	1	—	5
X	5	7	7	11	13	14	2	3	2	3

A KEY TO THE SPECIES OF *TROMOTRICHE*

1 Stems glabrous or virtually so; corolla smooth, with vibratile clavate cilia
  2 Corona partly or almost wholly included in the tube, outer lobes subquadrate, obtusely dentate, erectly spreading, inner lobes clavate, erectly recurved; stems usually ±acute angled .... 1. **revoluta**
  2 Corona exserted from the shallow tube, outer lobes oblong, bifid, horizontally spreading, inner lobes scarcely or not at all clavate, incumbent on the anthers but not or scarcely produced above them; stems usually ±obtuse angled ....2. **thudichumii**
1 Stems pubescent, corolla transversely rugulose, almost or quite eciliate .... 3. **engleriana**

1. **Tromotriche revoluta** (Masson) Haw., Syn. Pl. Succ.: 36 (1812), et Suppl. Pl. Succ.: 11 (1819).—G. Don, Gen. Syst. **4**: 119 (1838).—Leach in Jl S. Afr. Bot. **48**: 425 (1982). Lectotype: *Masson*, Stap. nov.: t. 10

Stapelia revoluta Masson, Stap. Nov.: 12, t. 10 (1796).—Willd. Sp. Pl. **1**: 1277 (1797).—Sims in Bot. Mag. **19**: t.724 (1804).—Aiton, Hort. Kew. ed. 2,**2**: 85 (1811).—Jacq. Stap.: t. 45 (1806–1819).—Schultes in Roem. & Schult., Syst. Veg. **6**: 34 (1820).—Decaisne in DC., Prodr. **8**: 657 (1844).—Schumann in Engl. & Prantl. Pflanzenfam. **4**: 2 (1897).—Schlechter in J. Bot. **36**: 483 (1898).—N. E. Br. in Gard. Chron. 1904, **36**: 206 (1904), et in Thiselton-Dyer, Flora Cap. **4**(1): 980 (1909).—Berger, Stap. u. Klein.: 226 (1910).—White & Sloane, Stapelieae, ed. 2,**2**: 654 (1937).—Phillips in Flower. Pl. S. Afr. **18**: t. 704 (1938).—Jacobsen, Lexicon Succ. Pl.: 381 (1974). Type: as above.

Stapelia glauca Jacq. Stap.: t. 44 (1806–1819), (1809 or earlier, fide White & Sloane, op. cit. **1**: 94 (1937).—Willd., Enum. Pl. Hort. Berol.: 279 (1813).—Hornem., Hort. Hafn. **1**: 247 (1813).—Schultes in Roem. & Schult., Syst. Veg. **6**: 34 (1820).—Spreng., Syst. Veg. **1**: 840 (1825), p.p. excl. syn.—Decaisne in DC., Prodr. **8**: 657 (1844). Lectotype: Jacq. Stap.: t. 44.

Stapelia fuscata Jacq. Stap.: t. 46 (1806–1819).—Decaisne in DC., Prodr. **8**: 657 (1844).—Schlechter in J. Bot. **36**: 480 (1898). Lectotype: Jacq. Stap. t. 46.

Tromotriche glauca Hort. Donn ex Haw., Syn. Pl. Succ.:37 (1812) Basionym: *Stapelia glauca* Donn, Hort. Cantab. ed. 6: 66 (1811), nom. nud. Type: dried flowers only (not seen).

Tromotriche glauca β. Haw., Syn. Pl. Succ.: 37 (1812).—*Tromotriche glauca* Haw., Suppl. Pl. Succ.: 11 (1819).—G. Don, Gen. Syst. **4**: 119 (1838). Type: as for *Stapelia glauca*.

Tromotriche fuscata (Jacq.) Haw., Suppl. Pl. Succ.: 10 (1819). Type: as for *Stapelia fuscata*.

Stapelia protensa Hornemann, Hort. Hafn. Suppl.: 30 (1819). Type: not traced.

Stapelia tigridia Decaisne in DC., Prodr. **8**: 657 (1844). Lectotype: Icon. Sims in Bot. Mag. **19**: t. 724.

Stapelia revoluta var. *tigridia* (Decaisne) N. E. Br. in Thiselton-Dyer, Flora Cap. **4**(1): 981 (1909).—White & Sloane, Stapelieae, ed. 2,**2**: 656 (1937).—Jacobsen, Lexicon Succ. Pl.: 381 (1974). Type: as for *Stapelia tigridia*.

Stapelia revoluta var. *fuscata* (Jacq.) N. E. Br. in Thiselton-Dyer, Flora Cap. **4**(1): 981 (1909).—Berger, Stap. u. Klein.: 228 (1910).—White & Sloane, tom. cit.: 657 (1937).—Jacobsen, Lexicon Succ. Pl.: 381 (1974). Type: As for *Stapelia fuscata*.

Stapelia revoluta var. *glaucescens* Rüst ex Berger, Stap. u. Klein.: 228 (1910).—White & Sloane, tom. cit.: 656 (1937). Type: not traced.

Plants rhizomatose, few-stemmed, sometimes forming large patches of scattered single stems or sometimes stems more or less clumped. *Stems* glabrous, 4-angled, more or less parallel-sided, sometimes slightly segmented, angles lightly sinuate-dentate, teeth small, horizontally spreading; leafless, estipulate or rarely when young with somewhat leaf-like "denticles" similar to those sometimes seen in some orbeas, the teeth often obscured by a leathery, brown, spreading callus. *Peduncle* obsolescent, cuspidate. *Pedicel* glabrous, rarely micro-asperulous, up to 15 mm long. *Sepals* glabrous, up to 8 mm long. *Corolla* very variable in size, exceptionally up to 68 mm diam. when flattened, lobed to ± 55 %, strongly revolute; outside glabrous; inside smooth, glabrous but to some extent micro-sphaerico-papillate and micro-asperulous, yellow to red-brown, paler in the centre (drying to dark red-brown); lobes broadly ovate, acute or shortly acuminate, ciliate with long purple vibratile clavate cilia; tube wide, markedly pentagonal inside, sometimes more or less circular at the much thickened mouth, often pubescent at the base inside. *Corona* very variable and variably raised on a pentagonal pedestal, sometimes subsessile, consequently variably partially included (rarely almost wholly); outer lobes brown, more or less subquadrate or sometimes subcircular, obtusely bifid or usually tridentate, sometimes subtruncate; inner lobes yellow, purple-speckled, 2-horned, the inner incumbent on the anthers, erectly connivent or convergent, recurved above, filiform, tuberculate-clavate; the outer narrowly triangular obtuse, laterally compressed, spreading, up to 4 mm long but often reduced to little more than a gibbosity. *Pollinia* more or less "D"-shaped, 0,8 × 0,5 mm. *Follicles* not seen.

Distributed in the Vanrhynsdorp, Calvinia and Clanwilliam districts, *T. revoluta* occupies a wide variety of habitats and soils and it seems worthwhile to quote from a letter from Harry Hall, latterly of Kirstenbosch,

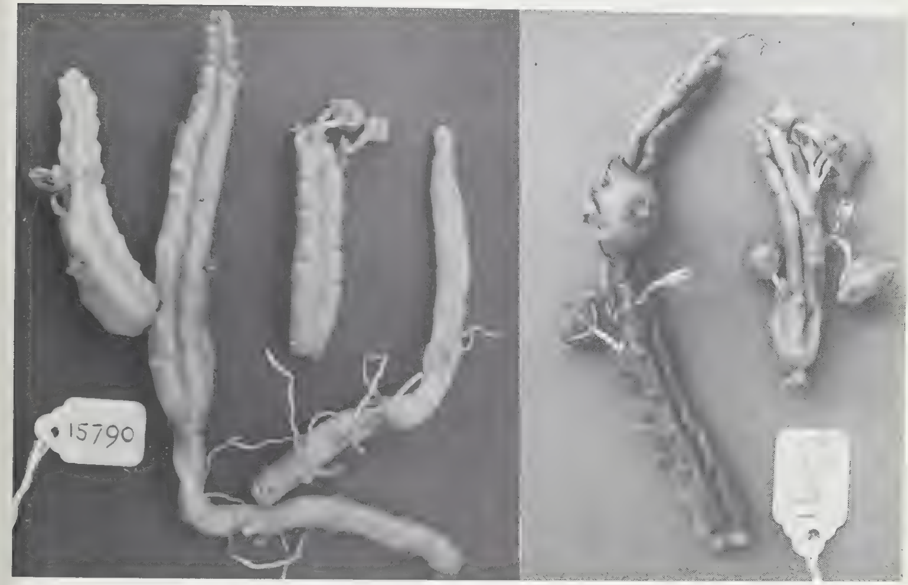

FIG. 2.
Tromotriche revoluta in cultivation at PRE. Photo by courtesy of the Director, Botanical Research Institure, Pretoria.

"always 50% of its bulk is underground" . . . "on Liebendal (near Vredendal) in deep red sand in full sun, stems only 5–10 cm emerged here and there quite far from where the underground portions commence" . . . "in the white quartz field over clay at Hol River, stems emerged only half a thumb's length above ground, scattered over an area 2 m or more in diameter—rhizomes 60 cm or more long are common at this locality" . . . "plants growing in these conditions seldom looked happy and I have never seen them in flower or fruit" . . . "plants in dense scrub in the Olifants River Valley, in Botterkloof and near the Giftberg summit are naturally taller and stouter".

Flowers vary from pale yellow green with purple lobes, yellow-brown to brown (all drying to a reddish-brown colour). As suggested by White & Sloane, tom. cit.:655, it seems probable that the several varieties which have been described should be considered as being hybrids of cultivation as they do not appear to occur in the wild.

MATERIAL EXAMINED

SOUTH AFRICA, CAPE—3018 (Kamiesberg): Grootklip, SW of the Langberg (-DD), 28/11/1956, *Acocks 19054* (PRE).

—3019 (Loriesfontein): Loeriesfontein (-CD), cult. NBG, fl. 3/1929, *Ross-Frames* in NBG *1285/26* (BOL).

—3118 (Vanrhynsdorp): Grootdrift (-BD), cult. Umtali 1972, *Plowes 3670* (PRE); Papendorp (-CA), rocks above salt pan, 27/5/1977, *Bruyns 1447* (NBG); 5 mls SE of Vredendal, Farm Richtan (-DA), 10/1967, *Haagner* in PRE *30386* (PRE), idem cult. Umtali, 13/3/1970, sub *Plowes 3028* (PRE); 4 mls W of Vanrhynsdorp (-DA), 4/4/1963, *Stayner 1959* (NBG); Klaver (-DC), cult. Claremont, 4/1945, *Leipoldt 4147* (BOL); 2 mls N of Bulshoek Barrage (-DD), 17/6/1976, *Bruyns 1073* (NBG).

—3119 (Calvinia): 6 mls N of Grasberg (-AA), 25/6/1975, *Bruyns 1099* (NBG); 9 mls N of Grasberg (-AA), cult. KGW, *Wisura* in KGW *287/74* (NBG); Wolwe Graafwater, S of Langeberg (-CD), cult. PRE, 2/9/1956, *Acocks 18955* (PRE); Botterkloof Pass (-CD), cult. NBG, 19/1/1959, *Hall 1397* (NBG); "Botterkloof" 9/5/1953, *Hall 699* (NBG).

—3218 (Clanwilliam): Kleinkliphuis (-BB), cult. PRE, 3/1966, *Hardy 1738* (PRE), ibid. cult. Umtali, sub *Plowes 5355*, 1980, *Rostrance* (PRE); 1 ml SE of Clanwilliam (-BB), cult. Cape Town, 4/1911, *Pillans 158* in *H. Bolus* (BOL).

Locality imprecise or lacking: Hort. Bolus, 1931, *H. H. Bolus 237* (BOL); Olifants Riv., 5/1936, *Smithers* in SAM *52231* (SAM); Doornbosch, Clanwilliam 17/3/1948, *Leipoldt* in NBG *511/46* (NBG).

2. **Tromotriche thudichumii** (Pillans) Leach, in Jl S. Afr. Bot. **48**: 425 (1982).

Stapelia thudichumii Pillans in Jl S. Afr. Bot. **25**: 375 (1959).—Jacobsen, Lexicon Succ. Pl.: 382 (1974). Type: Cape, Uitkomst, Tanqua Karoo, *Thudichum* in Herb. Bolus *26740* (BOL!).

Chromosome number $2n = 22$ (44) F. Albers, *in litt.*, 1980 K652 (KIEL).

Plants generally comprising scattered, simple or few-branched stems, connected by fleshy rhizomes, erect or partially trailing, usually growing in and supported by small twiggy shrublets. Stems 4-angled up to 15 mm thick, micro-asperulous or glabrescent, tubercle teeth small, horizontally spreading. *Leaves* scale-like, fugacious or apparently seldom developed, often represented by a transverse ridge or very narrow scar; stipular glands widely separated, very variable, usually small, frequently more or less transverse. *Peduncle* obsolescent, usually represented by a few cusps subtending the pedicels and buds; *pedicel* short, seldom exceeding 10 mm, micro-asperulous or glabrescent; *sepals* glabrous or sparsely micro-asperulous. *Corolla* outside glabrous; inside smooth glossy greenish-purple, strongly reflexed, up to 30 mm diam. when flattened, lobed to ± 50 %; lobes broadly ovate-acuminate, sometimes broader than long, variably micro-sphaerico-papillate, especially towards the apex of the lobes, but smooth to the eye, ciliate with dark purple, vibratile, clavate cilia arising just inside a very narrow subtranslucent plain margin; tube shallowly bowl-shaped, formed by the thickening of the

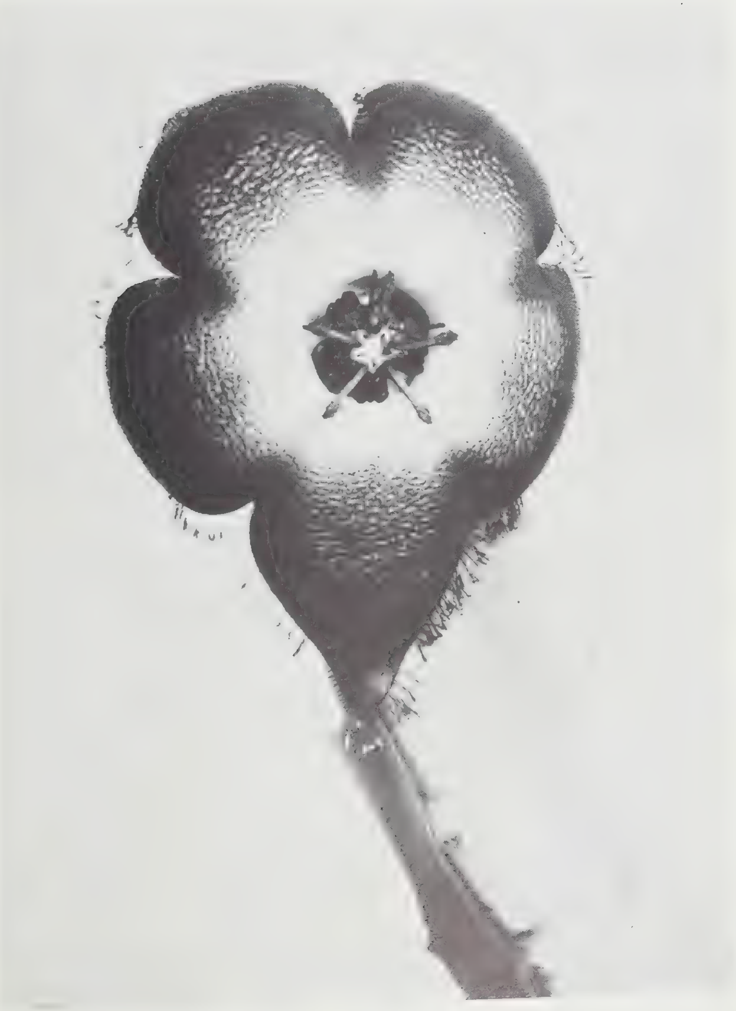

FIG. 3.
Tromotriche thudichumii from the Tanqua Karoo, showing rhizomatose habit, random inflorescence and flowers with strongly revolute corolla, all typical of the genus.

limb with no evidence of a tube on the outside, markedly pentagonal at the mouth, sometimes shortly pubescent inside. *Corona* raised on a 5-ribbed pedestal, with the widely spreading outer lobes usually above the level of the mouth of the tube; outer lobes dark brown, oblong, lightly channelled, bifid at the apex, up to 2,5 mm long; inner lobes, pale brown, 2-horned with the inner incumbent on the anthers, attenuate or slightly clavate, meeting and crossing at the centre or sometimes shortly ascending, the outer horn linear, horizontally spreading, laterally flattened, usually exceeding the outer lobes. *Pollinia* ± "D"-shaped, brown, anchor margin yellow, ± 0,5 × 0,375 mm. *Follicles* not seen.

This rather rare species with its distribution restricted to the Tanqua Karoo is relatively poorly known compared with its congeners. Its publication as a new species appears to have been long delayed, possibly because of doubts regarding its generic position, since it seems to have been recognised as undescribed as long ago as 1940, when Dr. Villet in ms. proposed the name *Stapelia malherbei*, while an unidentified specimen was collected by *Schmidt* in 1937. With regard to distribution I cannot do better than quote from Dr. Villet's informative notes attached to coloured sketches in BOL and PRE: "distributed over a wide area, especially in the northern part of the "Ceres Karoo" . . . "always in mesem. bushes, never among rocks".

The stipular glands of this species are quite different from those of *Stapelia* or of its congener *S. engleriana* and are very variable in both shape and colour. Its corona is very distinctive, the inner lobes especially, although quite variable, are always unmistakeably "thudichumii". The corolla is also exceptional in that the "tube" is formed entirely from the thickening of the corolla fabric, whereas in the other two species it is clearly evident in the outside shape of the corolla.

Material Examined

SOUTH AFRICA, CAPE—3219 (Wuppertal): Ratelklip (-BB), drawing only, 24/4/1954, *Villet* (PRE); Kliprug, between Elandsvlei and Elandsdrift (-BC), 26/11/1942, *Wagener* in NBG *44548* (NBG); Tulpfontein (-DA), *Leach & Bayer 15790* (PRE), idem sub *Plowes 4998* (GRA); Near Klein Hanglip (-DD), 30/4/1948, *Acocks 14307* (PRE), ibid. cult. PRE, 2/1957, *Acocks 18884* (PRE), ibid. *Leach & Bayer 16072* (K); ± 4 km NW of Beukesfontein (-DD), cult. Umtali, sub *Plowes 4701*, 26/12/1975, *Frandsen s.n.* (PRE); ± 30 mls NE of Karoopoort (-DD), 19/2/1960, *Slade & Rourke* in NBG *44529* (NBG).
—3220 (Sutherland): Uitkomst (-AA), cult. KGW, 6/1958, *Thudichum* in BOL *26740* (BOL) in KGW *583/54* (PRE), in NBG *62012* (NBG).

Imprecise or uncertain localities: Between Calvinia & De Bosch, 4/2/1954, *Hall* in NBG *44579* NBG); Gansfontein, N of Ceres, cult. Kalk Bay, 1/1940, *Malherbe s.n.* (BOL); "Calvinia", *Schmidt 566* (PRE); Gansfontein, N of Ceres, *Villet* in NBG *44549* (NBG); "Calvinia Distr.", Hort. Villet., 4/1940, *Villet s.n.* (BOL); Knersvlakte?, *Van Breda 782* (PRE).

Almost certainly erroneous localities: Gobas, S.W.A., cult. Whitehill, 4/1934, *Archer 760* (BOL); Kapitain's Kloof, *Thudichum* in KGW *415* (PRE).

3. **Tromotriche engleriana** (Schlechter) Leach in Jl S. Afr. Bot. **48**: 425 (1982). Type: Described from a live plant and flowers in spirit (B†). Neotype: S. Africa, Cape, near Laingsburg, *Pillans 60* (BOL!).

The original material is assumed to have been destroyed, *Pillans 60* is here selected to serve as neotype, the Laingsburg locality was cited by both Berger and N.E. Brown. The flowering specimen selected is supplemented by one in fruit under the same number, which is also in BOL.

Stapelia engleriana Schlechter in Engl. Bot. Jahrb. **38**: 49, fig. 8 (1905).—Berger in Monatsschr. Kakt. **16**: 176 (1906).—N. E. Br. in Thiselton-Dyer, Flora Cap. **4**(1): 979 (1909).—Berger, Stap. u. Klein.: 282 (1910).—Phillips in Flower. Pl. S. Afr. **12**: t. 462 (1932).—White & Sloane, Stapelieae, ed. 2,**2**: 640 (1937).—Luckhoff, Stapelieae S. Afr.: 146 (1952).—Jacobsen, Lexicon Succ. Pl.: 376 (1974). Type: as above.

Chromosome number: 2n = 44, F. Albers, *in litt.*, 1980, K189 (KIEL).

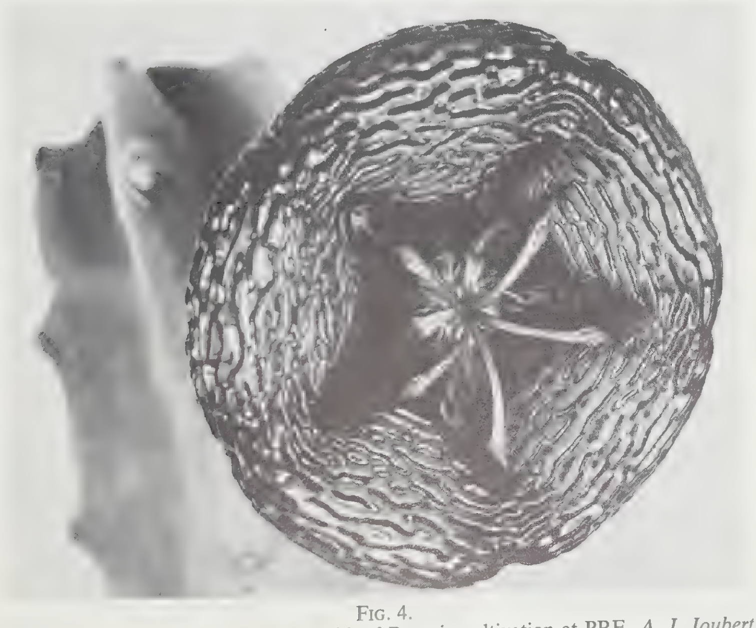

FIG. 4.

Tromotriche engleriana from Bosluiskloof Pass, in cultivation at PRE. *A. J. Joubert s.n.* (PRE). Photo by courtesy of the Director, Botanical Research Institute, Pretoria.

Plants rhizomatose, with stems arising scatteredly ("50 % growth underground" *Acocks 23636*). *Stems* up to 22 mm thick, sparingly branched, often jointed, lightly sinuate-dentate along the angles, grey-green, pubescent (sometimes glabrous to the eye). *Leaves* fleeting, rudimentary, initially suberect soon becoming spreading; stipular glands often obscure, rarely prominent, often absent, easily detached. *Peduncle* pubescent, flowers normally borne singly in close succession, but occasionally two develop together on a "split" peduncle. *Pedicel* and *calyx* densely pubescent; sepals ovate-acuminate, up to 6 mm long. *Buds* often abort after the first flower develops. *Corolla* strongly revolute, with the lobes rolled back so that flowers appear to be circular, ±20 mm diam., ±40 mm diam. when flattened; outside pubescent, cream-coloured, flecked and tinged red-brown; inside variably micropapillate and micro-asperulous, especially around the mouth of the tube, on the lobe apices and the sinus radii; rather finely transversely rugulose with red-brown rugosities on a creamy yellow ground, becoming wholly dark pur-

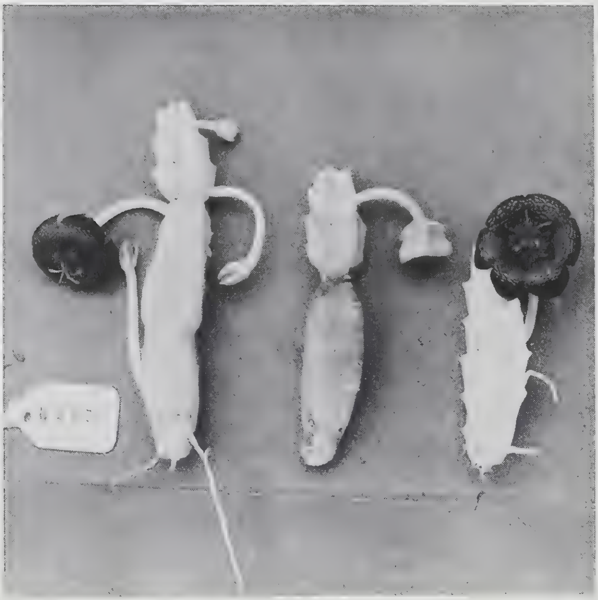

Fig. 5.
Tromotriche engleriana from near Mowers, cultivated at Umtali, showing jointed stems, random inflorescence and typical bud shape.

ple-brown above; mostly eciliate, sometimes with a very short, fine ciliation, rarely with a few short stout simple cilia. *Tube* markedly pentagonal, deeply grooved in the sinuses from the walls being much thickened opposite the lobes, usually pubescent inside. *Corona* shortly raised on a 5-ribbed pedestal, sometimes virtually sessile; outer lobes erectly spreading, obtusely subquadrate, sometimes almost circular, very obtusely bidentate, 3–4 mm long; inner lobes 2-horned, the inner filiform, up to 8 mm long, clavate, tuberculate at the apex, connivent erect, recurved above; the outer spreading, linear, laterally much compressed, often very slightly enlarged and subtuberculate at the apex, up to 5 mm long; anthers much widened at the apex. *Pollinia* yellow-orange to red-brown with a yellowish anchor margin, ±"D"-shaped, ±0,75 × 0,5 mm. *Follicles* fusiform, minutely puberulous, up to 100 mm long.

Occurring comparatively frequently in karroid habitats in the area from Worcester and Montagu to as far east as Beaufort West and Willowmore, *T. engleriana* is a remarkably uniform species in both vegetative and floral characters and is perhaps the most easily identifiable of all its tribe, whether as living or dried and pressed material. Its facies is so distinctive that it can usually be unerringly identified even when sterile.

Material Examined

SOUTH AFRICA, CAPE—3221 (Merweville): 82 km WNW of Beaufort West (-BB), 28/9/1978, *Bruyns 1750* (NBG); 32 km N of Leeugamka (-BD), 27/11/1978, *Bruyns 1746* (NBG).

—3222 (Beaufort West): Beaufort West (-BC), cult. PRE 1973, *Grant* (PRE), idem cult. SRGH sub *Leach 15952* (SRGH); Leeugamka (-BC), 9/1961, *Hardy 1001* (PRE), idem cult. Umtali, 21/12/1969, sub *Plowes 3024* (SRGH).

—3319 (Worcester): Mowers (-DA), cult. SRGH, 1978, *Leach & Bayer 15844* (SRGH); Kenmoor (-DC), cult. KGW, 9/1/1973, *Bayer 1421* (NBG).

—3320 (Montagu): 12 mls E of Touwsrivier (-AC), 13/6/1965, *Acocks 23636* (PRE); Avondrust, Touws Riv. (-AC), *Stayner* in KGW *47/71* (NBG); Zout Kloof Farm, 6 mls W of Laingsburg (-BB), hort. Pillans, fl. 30/11/1902, & fr. 12/1903, *Pillans 60* (BOL, bis); 2 mls SE of Laingsburg (-BB), cult. Cape Town. 11/1904, *Pillans 679* (BOL, bis); Kareevlakte (-DB), cult. Worcester, 9/1952, *Van Breda 456* (PRE); ibid., cult. NBG, 26/2/1955, *Hall* in NBG *220/54* (NBG).

—3321 (Ladismith): Dwyka (-BA), cult. Whitehill, 1/1934, *Archer 697* (BOL); Boschluiskloof Pass (-BC), 10/4/1948, *Acocks 8620* (PRE); ibid., cult. PRE, 10/2/1982, *Joubert s.n.* (PRE, SRGH); Muiskraal (-CC), cult. KGW *95/61*, *Villet* sub *Leach 15185* (SRGH); Ladismith Karoo, hort. Marloth, 3/1931, *Ferguson* sub *Marloth 13568* (PRE).

Imprecise or uncertain localities: Rietbron, Willowmore, cult. Umtali, *Pringle* sub *Plowes 3065* (SRGH); Stinkfontein, Fraserburg Road, cult. Transv. Mus., 2/1936, *Broom* in NH *27637* (NH); Road to Aberdeen, Beaufort West, Willowmore, cult. PRE, 1/1932, *Pole Evans 11290* (PRE); Cult. Cape Town Municipal Gardens, *Ridley s.n.* (SAM); 5/1928, Beaufort West Div. hort. Bolus, 1931, *H. H. Bolus 161* (BOL); 5/1928, *De Jager* (BOL). Beaufort West Div., Rhenoster Kop, *Foster* sub *Pillans 145* (BOL).

SPECIES EXCLUDAE

Tromotriche ciliata (Thunberg) Sweet = *Orbea ciliata* (Thunberg) Leach.

Tromotriche obliqua (Willd.) Sweet = *Orbea variegata* (L.) Haw.

Tromotriche pruinosa (Masson) Haw. = *Caralluma (Quaqua) pruinosa* (Masson) N. E. Br.

Tromotriche mutabilis (Jacq.) Sweet = *Stapelia mutabilis* Jacq., putative hybrid, from seed at Schönbrunn.

Tromotriche mutabillis var. *variabilis* Sweet = putative hybrid, from seed at Schönbrunn.

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